

of head. Scales very small, 20 between origin of soft dorsal and lateral line; latter formed of a few tubules widely separated from one another. Brownish, with dark lines forming a wide-meshed network; dorsal, anal, and caudal fins blackish, with round white spots more or less regularly arranged, and a white border.

Total length 190 mm.

Two specimens from Sierra Leone, presented to the Natural History Museum by the Liverpool School of Tropical Medicine.

LXX.—*Descriptions of new Genera and Species of Oriental Homoptera.* By W. L. DISTANT.

Fam. Fulgoridæ.

Subfam. DERBINÆ.

Phenice pullata, sp. n.

Head and thorax above piceous, pronotum black; body beneath black; metasternum and legs stramineous; coxæ piceous; abdomen above black, spotted with ochraceous; tegmina dark fuscous, the costal area white, with large dark fuscous spots, the second from base largest and longitudinal, the others transverse, the inner area broadly and irregularly white, the fuscous extending through it to inner margin near base and before middle, two white spots on apical margin, the lowermost large, the upper one small, the apices of the veins on inner margin are fuscous; wings fuliginous, with the veins fuscous, the posterior marginal area suffused with white; antennæ ochraceous.

Long., excl. tegm., 3 mm.; exp. tegm. 19 mm.

Hab. N.W. Ind. Prov.; Kumaon District.

Allied to *P. mursta*, Westw., but larger, markings of tegmina different, &c.

Phenice ferruginea, sp. n.

Vertex of head and pronotum sordidly greyish; mesonotum fuscous brown, with the lateral and basal margins (the latter broadly), a central straight longitudinal carination, and a broader waved longitudinal fascia on each lateral area sordidly greyish or very pale virescent; abdomen above fuscous

brown, the segmental margins black, with greyish spots; head beneath, sternum, and legs ochraceous; abdomen beneath transversely fuscous and ochraceous; tegmina fuliginous, with the veins ferruginous, costal membrane with a distinct series of sordidly greyish spots, some more indistinct spots of the same colour on basal area, and three or four short greyish-white lines at apex, beyond the apex of costal membrane three or four short, transverse, ferruginous, waved, linear spots, and the whole area of the tegmen more or less obscurely mottled with greyish; wings fuliginous, the veins ferruginous; vertex rather broader than in most species of the genus and distinctly longitudinally grooved; second joint of antennæ not reaching apex of head; face rounded, narrow, not angularly, laminately projecting; clypeus a little longer than face; abdomen above strongly, centrally, longitudinally ridged; scutellum centrally longitudinally compressed.

Long., excl. tegm., 4-5 mm.; exp. tegm. 20-23 mm.

Hab. Travancore; Maddathoray and near Trivandrum (*Annandale*).

Allied to *P. superba*, Dist.

Zoraida variipennis, sp. n.

Body above shining fuscous brown; pronotum pitchy black, abdomen somewhat largely spotted with ochraceous; second joint of antennæ ochraceous, with its apex black; body beneath and legs pale bright ochraceous; tegmina hyaline, the veins more or less ferruginous, costal membrane at extreme base and beyond middle to apex purplish red, with minute black spots, basal area, an irregular transverse central fascia, and a transverse fascia near apex dark fuliginous; wings hyaline, with the veins pale sanguineous; second joint of antennæ only a little shorter than head and thorax together; vertex narrow, somewhat triangular; mesonotum obsoletely tricarinate; abdomen centrally longitudinally ridged.

Long., excl. tegm., $3\frac{1}{2}$ mm.; exp. tegm. 22 mm.

Hab. Ceylon; Madulsima (*Fletcher*).

Zoraida spectra, sp. n.

Body pale ochraceous; legs stramineous; eyes black; tegmina and wings hyaline, the venation a little darker; second joint of antennæ pale ochraceous, about as long as head and thorax together; vertex very narrow; face very

narrow, prominently longitudinally ridged; clypeus slightly longer than face; mesonotum obscurely tricarinate; posterior tibiae distinctly spined beyond middle; tegmina about three times longer than greatest breadth, the apical margin subtruncate, the inner margin slightly dilated beyond clavus; wings short, extending a little beyond the clavus of tegmen.

Long., excl. tegm., 3 mm.; exp. tegm. 18 mm.

Hab. N.W. India (Brit. Mus.).

Allied to *Z. gilva*, Dist., from Ceylon, but a smaller species, the tegmina less broadened, the venation darker, the apical veins also quite different, being much more strongly oblique in *gilva* than in *spectra*.

ROBIGUS, gen. nov.

Head narrow, vertex strongly projecting in front of eyes, a little broadened anteriorly, the lateral margins distinctly acutely raised, the apical angles slightly prominent; face long and narrow, the lateral margins distinctly raised, longer than clypeus, which is centrally ridged; pronotum narrow, the lateral margins amplified and distinctly forwardly produced on each side of eyes; mesonotum tricarinate; abdomen with the segmental incisures profound, above with the apical area narrowed and angulated; legs of moderate length, posterior tibiae not spined; tegmina more than three times as long as broad, with distinct series of apical and subapical cells, two longitudinal cells at end of radial area, and above these the contour of the costal margin is distinctly broken by an irregular, raised, longitudinal, cellular interspace; the tegminal apices are slightly narrowed and rounded; wings shorter and a little broader than tegmina, the venation complicated by the vein at end of radial area being concavely sinuated and bifurcating at about half its length, forming a marginal cell, before apex a transverse vein defining three apical cells.

A genus to be placed near *Interamma*, Walk.

Robigus sanguineus, sp. n.

Body and legs sanguineous, mottled with ochraceous, the tibiae and tarsi ochraceous, the apical area of the abdomen above (excluding apex) pitchy black; tegmina ochraceous, much suffused with sanguineous, the latter coloration more prominent on the costal and apical areas and in some macular markings on disk, on apical margin two or three rather obscure greyish spots; wings sanguineous, with their extreme bases ochraceous.

Long., excl. tegm., 3 mm.; exp. tegm. $14\frac{1}{2}$ mm.

Hab. Ceylon; Kandy (*Green*).

Mr. E. E. Green sent me a single example of this beautiful and distinct genus and species.

DAWNARIA, gen. nov.

Head short, the vertex narrow, continued moderately in front of eyes, its apical angles slightly prominent; face long and narrow, about equal in length to clypeus; antennæ with the second joint prominent, scarcely shorter than head; pronotum narrow, slightly widened towards the lateral angles; mesonotum tricarinate, but the central carination very indistinct; abdomen short and broad, above centrally ridged, little angulated on each side before apex; legs of moderate length, posterior tibiæ not spined; tegmina more than three times as long as broad, narrow, but gradually widening from base to apex, which is obtusely angularly rounded, the veins mostly longitudinal, but furcating on apical area, form a cluster of apical cells, and a longer cell on apical margin; wings very long, about as broad but only a little shorter than tegmina, two transverse veins on upper disk beyond middle, and a single apical cell.

Dawnaria atroterminata, sp. n.

Body above ochraceous; a central line on disk and apical margins of abdomen above black; body beneath and legs very pale ochraceous; tegmina tawny brown, with three broken transverse greyish-white fasciæ—the first near base, broken in the middle, second near middle, dislocated near costal margin, the third near apex, short and discal,—costal area greyish white, with longitudinal dark tawny spots, a dark somewhat rounded spot near apex; wings hyaline, reflecting opaline lustre.

Long., excl. tegm., 2 mm.; exp. tegm. 11 mm.

Hab. Lower Burma; Dawna Hills.

SUMANGALA, gen. nov.

Head rather long, narrow, vertex distinctly projecting beyond the eyes, face compressed, rounded from vertex, long and narrow, longer than the clypeus; pronotum very short, the lateral areas dilated and subangularly produced transversely and a little forwardly; mesonotum broad, broader than long, the lateral margins rounded; anal appendages bilobate; tegmina about twice as long as greatest width.

much narrower at base than at apex, costal margin rounded, costal membrane broad, with three transverse veins, sometimes placed near apex or sometimes one near middle, the other two near apex, about eight apical areas, the ulnar area immediately below radial area very long, radial area narrow; wings a little narrower and shorter than tegmina, radial area apically broadened, three apical areas, apex of radial area well defined by obliquely transverse veins.

By the venation of the tegmina this genus is allied to *Kermesia*, Melich., by the structure of the face it is more allied to *Rhotana*, Walk.

Sumangala delicatula, sp. n.

Body and legs pale ochraceous; the compressed margin of face and the sublateral margins to pronotum more or less sanguineous; tegmina creamy white, subhyaline, the veins mostly very pale fuscous, on the apical area some of the veins are infuscated, the most prominent of these fuscous markings being at the apex of clavus and continued along the apices of the two cells above it, and a curved line reaching costal margin a little before apex, some of the longitudinal veins defining the lower apical areas bear a small pale fuscous spot; wings creamy white, subhyaline, the veins almost concolorous.

Long., excl. tegm., 2 mm.; exp. tegm. 9 mm.

Hab. Ceylon; Nuwara Eliya, Pattipola (*Green*).

ALARA, gen. nov.

Vertex of head very narrow, slightly projecting beyond eyes; face long, narrow, a little widened before clypeus, which is long, broad, centrally and laterally finely carinate; antennæ short, inserted near base of clypeus, second joint very robust; pronotum narrow, triangularly anteriorly produced, the lateral areas moderately foliaceously ampliate; mesonotum broad; legs long and slender; tegmina short, broad, costal margin rounded, narrowed and sinuate at base, costal area broad, with a few transverse veins, apical areas numerous and short, a subapical series of transverse discontinuous veins, two transverse discal veins a little beyond base; wings a little narrower and shorter than tegmina.

A genus to be placed near *Kermesia*, Melich.

Alara dua, sp. n.

Body and legs ochraceous; anterior femora and apical area

of abdomen castaneous; tegmina subhyaline, talc-like, suffused with pale fuscous, which is broken on costal and apical areas and also near end of clavus, extreme costal margin in places carmine-red; wings creamy white.

Long., excl. tegm., 2 mm.; exp. tegm. 9 mm.

Hab. Ceylon; Maskeliya, Kandy (*Green*).

PERANDENINA, gen. nov.

Head (including eyes) considerably narrower than pronotum, vertex projecting beyond the eyes, somewhat flat, its apex truncate, its base concavely emarginate, face narrow, the lateral margins very strongly ridged, from behind eyes gradually narrowed to clypeus, which is moderately convex and centrally longitudinally ridged; pronotum narrow, widened at its lateral areas, the posterior margins of which are more or less obliquely truncate, the base strongly concavely emarginate; mesonotum large, four times as long as pronotum, rather obsoletely tricarinate on vertex; legs of moderate length, posterior tibiae not spined, basal joint of posterior tarsi elongate; tegmina elongate, about four times as long as broad, the margins parallel, costal margin distinctly sinuate near base, apical margin truncately rounded, veins longitudinal, costal membrane not transversely veined, about seven short apical areas, the uppermost immediately preceded by two short and broad cells, two distinct elongate basal cells, followed by four elongate subapical cells; wings ample, considerably broader and only moderately shorter than tegmina; rostrum short, robust, the apical joint minute.

Allied to *Kamendaka*, Dist.

Peradenina typica, sp. n.

Vertex of head, mesonotum, body beneath, and legs bright ochraceous; pronotum and sometimes vertex of head distinctly paler; eyes black; tegmina and wings cretaceous white, moderately tomentose, the upper and apical areas of the latter with opaline lustre; other characters as in generic diagnosis.

Long., excl. tegm., 3 mm.; exp. tegm. 12 mm.

Hab. Ceylon; Peradeniya (*Green*). Kumaon; Bhim Tal, 4500 feet (*Annandale*).

CHAPRINA, gen. nov.

Head (including eyes) very much narrower than pronotum, vertex prolonged in front of eyes, its lateral margins

ridged, its apex angulated; face long and narrow, the lateral margins very strongly ridged, slightly widened before clypeus, which is shorter than the face and with its margins strongly ridged; pronotum very short, especially behind head, the lateral areas angularly dilated; mesonotum finely tricarinate; legs of moderate length, posterior tibiae not spined; tegmina about three times as long as broad, a little widened apically, the costal and inner margins nearly parallel, the apical margin a little rounded and sinuate, a series of short irregular apical cells continued round the apex of costal area, on lower portion of which near apex is a short narrow longitudinal cell; wings broader and a little shorter than the tegmina, the radial area long.

A genus to be placed near *Tupoosa*, Dist.

Chaprina nigromaculata, sp. n.

Head, pronotum, and mesonotum ochraceous, more or less greyishly tomentose; abdomen above fuscous, a greyish-white transverse fascia near base, the apical area ochraceous, with transverse black spots; head beneath, sternum, and legs more or less ochraceous; abdomen beneath castaneous brown, its apex ochraceous; tegmina creamy white, with waved irregular ochraceous markings, these principally consist of some obliquely transverse lines in costal area, a subtriangular fascia near base continued from about end of clavus to the submarginal area, where it more or less encloses some pale spots, at the apex three distinct black spots; wings pale creamy white, the veins pale fuscous.

Long., excl. tegm., $3\frac{1}{2}$ mm.; exp. tegm. 12 mm.

Hab. Bengal; Chapra (*Mackenzie*). Pusa (found on grass).

Chaprina vittata, sp. n.

Body and legs stramineous; vertex and pronotum greyish white; tegmina creamy white, with irregular ochraceous markings, these are irregular, maculate, and consist of an elongate spot occupying nearly basal half of clavus, another at and rising above claval apex, two in radial area (one at base, the other at apex), one at end of cell beyond radial area, two, almost united, beneath the base of this cell, and some marginal irregular spots of the same colour, a few small dark spots on disk, and at the apex two short dark longitudinal vittae, with a small dark spot above and below them; wings pale creamy white.

Long., excl. tegm., 3 mm. : exp. tegm. 10-11 mm.

Hab. Bengal; Chapra (*Mackenzie*). Ceylon; Hakgala (*Green*).

TAPPOOSA, gen. nov.

Vertex of head projecting beyond the eyes, with a short acute spine on each side at apex, recurved, narrow, the lateral margins ridged, angularly widened between the eyes; face long, narrow, behind the eyes widened outwardly and then inwardly to clypeus, which is very short; antennæ inserted beneath the eyes, second joint moderately short and thick; pronotum short, angularly directed anteriorly, lateral margins not foliaceous; mesonotum broad, tricarinate; legs long and slender; tegmina somewhat narrow, their apices subangularly rounded, apical areas numerous, short, ill-defined, and continued round apices of costal and inner margins, an irregular series of transverse and discontinuous veins beyond middle, costal area broad; wings a little shorter and broader than tegmina.

Allied to *Kamendaka*, Dist. The Australian genus *Makula*, Dist., also belongs to this group of genera.

Tapoosa maskeliye, sp. n.

Body and legs very pale tawny; mesonotum with the carinations fuscous; two fuscous lines on each side of the laterally compressed head, radiating from eyes to margin; clypeus, disk of sternum, and femora black; tegmina subhyaline, talc-like, apical veins more or less sanguineous, apical areas with fuscous streaks, the whole remaining disk suffused with pale fuscous, excluding some pale spots on costal area, basal area, and clavus; wings pale hyaline, with an opaline lustre, the veins on costal area fuscous.

Long., excl. tegm., $3\frac{1}{2}$ mm.; exp. tegm. 13 mm.

Hab. Ceylon; Maskeliya (*Green*).

Tapoosa maculosa, sp. n.

Head very pale ochraceous; pronotum greyish white; mesonotum pale ochraceous; abdomen above and body beneath and legs pale ochraceous; tegmina pale creamy white, the veins and scattered suffusions pale ochraceous, a small spot near middle of costal membrane, another at base of radial area, a series on inner margin, and some still smaller spots on apical margin fuscous or piceous; wings pale creamy white; a central ridge and the apex to abdomen above

distinctly paler; face a little less dilated than in *maskeliye* and *elegantula*.

Long., excl. tegm., 3 mm.; exp. tegm. 13 mm.

Hab. Ceylon; Maskeliya.

Tapoosa elegantula, sp. n.

Head creamy white, central base foveately ochraceous, lateral margins of the face greyish white, with transverse fuscous lines; pro- and mesonota ochraceous, the former with a sublateral black fascia behind eyes, the latter with the margins more or less irregularly black; abdomen above and body beneath and legs pale ochraceous; tegmina creamy white, a black spot near middle of costal membrane, the remainder of this area to near apex dull ochraceous, with a minute black spot beyond middle of costal margin, the apex creamy white with minute black spots, and with a short, broad, central, sanguineous, fasciate spot containing two small rounded and two linear black spots; beneath radial area are two ochraceous spots margined with fuscous, the first basal, the second near middle, and beyond the latter on posterior marginal area a series of waved blackish lines; wings creamy white; abdomen strongly constricted before apex.

Long., excl. tegm., $2\frac{1}{2}$ mm.; exp. tegm. 10 mm.

Hab. Ceylon; Peradeniya (*Green*).

From fronds of palm-trees (*E. E. Green*).

PIIRA, gen. nov.

Vertex of head moderately broad and triangular, distinctly projecting in front of eyes, the lateral margins strongly ridged; face very long and narrow, broadest at base, lateral margins strongly ridged; clypeus short, broad, obscurely ridged; antennae inserted beneath eyes, short, robust; pronotum short, subtriangularly produced anteriorly, the lateral areas acutely foliaceous; mesonotum broad and long; legs long and slender; tegmina widening towards apices, which are subtruncate, costal area broad, with two or three indistinct transverse veins beyond middle, apical areas numerous, short, extending from posterior angle of inner margin to apex of costal margin, only one subapical series of transverse veins; wings about two-thirds of the length of tegmina, four discal transverse veins beyond middle.

Phra in the Indian fauna must be placed near *Kamendaka*. It is more closely allied to the Australian genus *Penuahala*, Dist.

Phra amplificata, sp. n.

Head, pronotum, body beneath, and legs pale ochraceous ; eyes black, with golden iridescence ; mesonotum with four castaneous fasciæ, two central and contiguous and one near each lateral margin ; tegmina subhyaline, tale-like, pale fuscous streaks on costal and apical areas, many of the discal veins suffused with fuscous and more prominent suffusions on radial area and on inner margin ; wings hyaline, with an opalescent lustre, the veins a little darker.

Long., excl. tegm., 3-4 mm. ; exp. tegm. 17-18 mm.

Hab. Ceylon ; Maskeliya (*Green*).

Phra atromaculata, sp. n.

Body above, head beneath, sternum, and legs dull brownish ochraceous, the abdomen with the posterior segmental margins greyish white ; abdomen beneath dull stramineous, with lateral marginal fuscous spots and the posterior segmental margins greyish white ; tegmina dull greyish white, tale-like, the veins prominent and beyond basal area paler and more creamy white in colour, with small scattered black spots, two in posterior half of costal membrane, two in radial area, one beneath radial area, and another (larger) near claval apex, on apical half of disk, three or four spots arranged longitudinally ; wings creamy white.

Long., excl. tegm., 4 mm. ; exp. tegm. 13 mm.

Hab. N.W. India.

ARCHA, gen. nov.

Vertex of head long and narrow, projecting considerably beyond eyes, moderately widened posteriorly, notched at apex, the lateral margins strongly ridged ; face long and narrow, the lateral margins ridged, a little amplified before clypeus, which is centrally ridged and much shorter than face ; antennæ inserted just before base of clypeus, long, second joint very robust ; rostrum reaching the posterior coxæ, apical joint of moderate length ; legs moderately long and slender ; pronotum short, angularly sinuate, its lateral margins foliaceously produced, its posterior margin ridged ; mesonotum long, somewhat obscurely tricarinate ; tegmina narrow at base, broadened towards apices, apical areas numerous, short, extending from posterior angle of inner margin to apex of costal margin, costal area wide, without transverse veins, costal margin sinuate a little beyond base.

By the strongly developed antennæ *Archæ*, in this fauna.

is allied to *Vinata* and *Devadanda*, and by the structure of the antennæ more to *Vinata*; the position of their insertion, the structure of the face, and the single series of transverse veins to the apical areas of the tegmina will, however, prevent any confusion. It is more nearly allied to the Australian genus *Kuranda*, Dist.

Archa typica, sp. n.

Head, pronotum, and mesonotum ochraceous; a lateral fascia on each side of mesonotum black; central area of face, eyes, and antennæ black; sternum and legs piceous; abdomen beneath with the posterior segmental margins sanguineous and basally suffused with piceous; tegmina cretaceous white, near middle crossed by a broken transverse black fascia.

Long., incl. tegm., 8 mm.

Hab. Ceylon; Peradeniya (*Green*).

LXXI.—On the Upper Devonian Ostracoderm, *Psammosteus taylori*. By A. SMITH WOODWARD, LL.D., F.R.S.

(Published by permission of the Trustees of the British Museum.)

[Plate IX.]

IN 1892, when studying Devonian fishes in the University Museum of Dorpat, I observed a large, ovoid, convex dermal plate exhibiting the characteristic texture and ornament of *Psammosteus paradoxus**. On returning to London I identified a rough papier-maché copy of this plate which had been presented to the British Museum by Sir Roderick Murchison in 1842, but had not previously been determined†. Some time afterwards Mr. William Taylor discovered in the Upper Old Red Sandstone of Newton Quarry, Elgin, a nearly similar plate, which he presented to the Royal Scottish Museum; and the close resemblance of this plate to the Russian specimen was soon recognized by Dr. Traquair when he examined the British Museum cast for comparison.

* L. Agassiz, Poiss. Foss. V. G. R. (1845) p. 104, pl. B, figs. 5, 6, pl. xxvii. figs. 2-4.

† A. S. Woodward, "The Problem of the Primæval Sharks," Nat. Science, vol. vi. (1894) p. 38, fig. 1.